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Claims

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1. Fire escape apparatus suitable for use in locations where escape requires a movement from a first level to a second lower level comprising a casing, a flexible ladder, and a means for deploying said ladder; in which the casing has a mouth and is of sufficient dimensions to contain the flexible ladder when not in use, the deployment means includes a spacer ¹¹² means and one or more handle means, and in which the deployment means may be reversibly reconfigured between a storage configuration and a deployed configuration. 12
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- 15 2. Fire escape apparatus according to claim 1 in which the casing is comprised of a base, first and second side walls, and front and back walls extending between the first and second side walls, and in which the mouth of the casing is an aperture between the inside and out side of the casing, and the mouth is located
- 20 between the side walls and the front and back walls opposite the base.
- 25 3. Fire escape apparatus according to claim 2 in which one edge of each of the side and front and back walls are joined to the base.
- 30 4. Fire escape apparatus according to any preceding claim in which each ^{of said} handle means has an associated handle channel located within the casing, each handle channel is dimensioned and configured to allow reversible

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movement of a handle means along the handle channel when the deployment means is reconfigured, and in which a portion of each handle means projects from an end of the associated handle channel when the deployment means is in the deployed configuration, and the projecting portion of each handle means projects through the mouth of the casing.

5. Fire escape apparatus according to any of claims 1 to 3 in which each handle means has an associated handle channel attached to an outside face of, or integral with, a wall of the casing, each handle channel is dimensioned and configured to allow reversible movement of the associated handle means along the handle channel when the deployment means is reconfigured, in which a portion of each handle means projects from an end of the associated handle channel when the deployment means is in the deployed configuration, and the projecting portion of each handle means is adjacent to the mouth of the casing.

6. Fire escape means according to claim 4 or 5 in which each channel is provided with stop means to limit the movement of the handle in the channel means between a stored position and a deployed position.

7. Fire escape apparatus according to any preceding claim in which the spacer means is adapted to move from a storage position to a deployed position.

8. Fire escape apparatus according to claim 7 in which

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the spacer means when in the storage position is at least partially within the casing.

9. Fire escape apparatus according to claim 7 or 8 in which the spacer means is pivotally engaged with at least one handle means, and the spacer means may pivot relative to the handle means when the deployment means is reconfigured.

10. Fire escape apparatus according to claim 9 in which the spacer means comprises a first and second lateral bar deposited substantially parallel to each other, each lateral bar being pivotally engaged with a handle means substantially at a first end and fixed to a spacer bar extending between the first and second lateral bars substantially at or adjacent to the second end.

11. Fire escape apparatus according to claim 10 in which each lateral bar includes a grip portion at or adjacent to the second end of said lateral bar.

12. Fire escape apparatus according to any preceding claim in which the deployment means further includes a second ladder means, said second ladder means being shorter than the flexible ladder, and in which the second ladder means is adapted to move from a storage position to a deployed position.

13. Fire escape apparatus according to claim 12 in which second ladder means when in the storage position is at

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least partially within the casing.

5 14. Fire escape apparatus according to claim 12 or 13 in which the second ladder means includes at least one ladder support means, at least two rungs, and at least one rung support means, and in which the ladder support means is pivotally engaged with at least one handle means, and the ladder support means pivots relative to the handle means when the deployment means is reconfigured.

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15 15. Fire escape apparatus according to claim 14 in which the ladder support means comprises first and second support bars deposited substantially parallel to each other, each support bar being pivotally engaged with a handle means substantially at a first end and engaged with a rung support means substantially at the second end.

20 16. Fire escape apparatus according to claim 14 or 15 when dependent on claim 11 or 12 in which the spacer means and the ladder support means are each pivotally attached to a single pivot means on each handle means to which they are attached.

25 17. Fire escape apparatus according to any of claims 14 to 16 when dependent on claims 9 or 10 in which the spacer means and the ladder support means pivot in opposite directions when the deployment means is reconfigured.

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- 5 18. Fire escape apparatus according to claim 16 or 17 in which at least one of the pivot means is provided with one or more stop means, said stop means being adapted to limit the angle through which at least one of the spacer means and the ladder support means may pivot.
- 10 19. Fire escape apparatus according to claim 17 or 18 in which the spacer means and the ladder support means are each provided with one or more stop means, said stop means being adapted to limit the angle through which the spacer means and the ladder support means may pivot relative to either the handle means or each other.
- 15 20. Fire escape apparatus according to any preceding claim in which there are two handle means, at least a portion of the mouth of the casing extends between the handle means when in deployed position.
- 20 21. Fire escape apparatus according to any preceding claim in which each handle means has a substantially straight longitudinal axis, and a first end of the handle means is configured to be easily gripped in a human hand.
- 25 22. Fire escape apparatus according to any preceding claim in which the flexible ladder is comprised of a plurality of rungs, said rungs being fixed at substantially even spacings to a pair of longitudinal flexible rung supports.
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23. Fire escape apparatus according to any preceding claim in which one end of said flexible ladder is fixed to the base of the casing.

24. Fire escape apparatus according to any preceding claim in which one end of said ladder is adapted to releasably engage with the spacer means.

10 25. Fire escape apparatus according to claim 24 in which re-configuration of the deployment means from the storage configuration to the deployed configuration causes the spacer means to pull the end of the ladder releasably engaged with the spacer means through the
15 mouth of the casing.

26. Fire escape apparatus according to any preceding claim in which there is further provided a removable closure means adapted to close the mouth of the casing.

20 27. Fire escape apparatus according to claim 26 in which the closure means is provided with at least one seal means adapted to produce a substantially liquid and or gas tight seal when the mouth of the casing is closed.

25 28. Fire escape apparatus according to claim 26 or 27 in which the closure means is further provided with one or more latch means adapted to latch the closure means in a closed position.

30 29. Fire escape apparatus according to any preceding claim

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in which the deployment means further includes a power source adapted to cause the deployment means to be reconfigured from the storage configuration to the deployed configuration once activated by an actuation means.

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30. Fire escape apparatus according to claim 29 when dependent on any of claims 26 to 28 in which removal of the closure means from the mouth of the casing causes the actuation of the energy source.

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31. Fire escape apparatus according to claim 29 or 30 in which the energy source is one or more compression springs, each of said springs being held in a compressed state by a latch means, and in which the actuation means causes release of the latch means.

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32. Fire escape apparatus according to any of the preceding claims in which the apparatus is adapted to be fixed to a building.

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33. Fire escape apparatus according to claim 32 in which the apparatus is adapted to be fitted beneath a window of the building.

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34. Fire escape apparatus according to claims 32 or 33 in which the wall of the casing includes one or more fluid tight passages, interconnected with each other, an input port and an output port.

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35. Fire escape apparatus according to claim 32 or 33 in

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5 which the building has a structural frame, an inner skin and an outer skin, and in which the apparatus is adapted to be fixed to the structural frame between the inner and outer skins, and the mouth of the casing faces upwards.

10 36. Fire escape apparatus according to claim 35 when dependent on any of claims 26 to 28 in which the closure means forms a window sill.

37. Fire escape apparatus according to any of claims 1 to 31 in which the apparatus is adapted to be used on a sailing vessel.

15 38. Fire escape apparatus according to claim 37 in which the apparatus is adapted to be fixed to the hull of the vessel adjacent the junction of the hull and a deck.

20 39. Fire escape apparatus according to any preceding claim in which the apparatus is further provided with means to detect a change in the configuration of, or movement within, the apparatus, and communication means in which the communication means may communicate the detection of that change or movement to a
25 monitoring device, or an indicator means.

30 40. Fire escape apparatus according to claim 39 in which the communication means sends one or more communications via electromagnetic radiation or via fixed wires.

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41. Fire escape apparatus according to claims 39 or 40 in which the communication means communicates detection of the change or movement to an emergency service or to apparatus which, in turn, causes a fire alarm to sound.

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